

STATE OF SOUTH CAROLINA

Application of South Carolina Electric & Gas Company
for a Certificate of Environmental Compatibility and
Public Convenience and Necessity for the Construction
and Operation of a 230 kV Transmission Line from Its
V.C. Summer Switchyard #1 to Its Killian Transmission
Substation and Two 230 kV Transmission Lines from
Its V.C. Summer Switchyard #2 to Its Lake Murray
Transmission Substation

Young Test - 232445 -
Hollifield Test - 232446
BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

COVER SHEET

DOCKET

NUMBER: 2011 - 325 - E

(Please type or print)

Submitted by: Matthew W. GissendannerSC Bar Number: 76027Address: SCANA Corp.Telephone: 803-217-5359220 Operation Way, MC-C222Fax: 803-217-7931Cayce, SC 29033-3701

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DOCKETING INFORMATION (Check all that apply)

☐ Emergency Relief demanded in petition☐ Request for item to be placed on Commission's Agenda expeditiously☐ Other: _____

INDUSTRY (Check one)	NATURE OF ACTION (Check all that apply)		
<input checked="" type="checkbox"/> Electric	<input type="checkbox"/> Affidavit	<input checked="" type="checkbox"/> Letter	<input type="checkbox"/> Request
<input type="checkbox"/> Electric/Gas	<input type="checkbox"/> Agreement	<input type="checkbox"/> Memorandum	<input type="checkbox"/> Request for Certification
<input type="checkbox"/> Electric/Telecommunications	<input type="checkbox"/> Answer	<input type="checkbox"/> Motion	<input type="checkbox"/> Request for Investigation
<input type="checkbox"/> Electric/Water	<input type="checkbox"/> Appellate Review	<input type="checkbox"/> Objection	<input type="checkbox"/> Resale Agreement
<input type="checkbox"/> Electric/Water/Telecom.	<input type="checkbox"/> Application	<input type="checkbox"/> Petition	<input type="checkbox"/> Resale Amendment
<input type="checkbox"/> Electric/Water/Sewer	<input type="checkbox"/> Brief	<input type="checkbox"/> Petition for Reconsideration	<input type="checkbox"/> Reservation Letter
<input type="checkbox"/> Gas	<input type="checkbox"/> Certificate	<input type="checkbox"/> Petition for Rulemaking	<input type="checkbox"/> Response
<input type="checkbox"/> Railroad	<input type="checkbox"/> Comments	<input type="checkbox"/> Petition for Rule to Show Cause	<input type="checkbox"/> Response to Discovery
<input type="checkbox"/> Sewer	<input type="checkbox"/> Complaint	<input type="checkbox"/> Petition to Intervene	<input type="checkbox"/> Return to Petition
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<input type="checkbox"/> Transportation	<input type="checkbox"/> Discovery	<input checked="" type="checkbox"/> Prefiled Testimony	<input type="checkbox"/> Subpoena
<input type="checkbox"/> Water	<input checked="" type="checkbox"/> Exhibit	<input type="checkbox"/> Promotion	<input type="checkbox"/> Tariff
<input type="checkbox"/> Water/Sewer	<input type="checkbox"/> Expedited Consideration	<input type="checkbox"/> Proposed Order	<input type="checkbox"/> Other:
<input type="checkbox"/> Administrative Matter	<input type="checkbox"/> Interconnection Agreement	<input type="checkbox"/> Protest	
<input type="checkbox"/> Other:	<input type="checkbox"/> Interconnection Amendment	<input type="checkbox"/> Publisher's Affidavit	
	<input type="checkbox"/> Late-Filed Exhibit	<input type="checkbox"/> Report	



Matthew W. Gissendanner
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September 22, 2011

VIA HAND DELIVERY

The Honorable Jocelyn G. Boyd
Chief Clerk/Administrator
Public Service Commission of South Carolina
101 Executive Center Drive, Suite 100
Columbia, South Carolina 29210

RE: Application of South Carolina Electric & Gas Company for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 230 kV Transmission Line from Its V.C. Summer Switchyard #1 to Its Killian Transmission Substation and Two 230 kV Transmission Lines from Its V.C. Summer Switchyard #2 to Its Lake Murray Transmission Substation
Docket No. 2011-325-E

Dear Ms. Boyd:

Enclosed for filing on behalf of South Carolina Electric & Gas Company ("SCE&G" or "Company") in the above-captioned docket is the direct testimony and exhibits of Hubert C. Young, III and Dwight M. Hollifield.

By copy of this letter, we are providing the other parties of record with a copy of SCE&G's direct testimony and attach a certificate of service to that effect.

If you have any questions, please advise.

Very truly yours,

Matthew W. Gissendanner

MWG/mcs
Enclosures

The Honorable Jocelyn G. Boyd

September 22, 2011

Page 2

cc: Mr. John Flitter
Ms. Shannon Bowyer Hudson, Esquire
Mr. Jeffrey M. Nelson, Esquire
Mr. Carlisle Roberts, Esquire
Mr. Danny C. Crowe, Esquire
Ms. Shannon F. Bobertz, Esquire
Mr. Duane Parrish
Mr. John E. Frampton
Mr. J. Milton Pope
(all via First Class U.S. Mail w/enclosures)

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011- 325-E

IN RE:

Application of South Carolina Electric &)
Gas Company for a Certificate of)
Environmental Compatibility and Public)
Convenience and Necessity for the)
Construction and Operation of a 230 kV)
Transmission Line from Its V.C. Summer)
Switchyard #1 to Its Killian Transmission)
Substation and Two 230 kV Transmission)
Lines from Its V.C. Summer Switchyard)
#2 to Its Lake Murray Transmission)
Substation)

CERTIFICATE OF SERVICE

This is to certify that I have caused to be served this day one (1) copy of South Carolina Electric & Gas Company's **Testimony and Exhibits of Hubert C. Young, III and Dwight Hollifield** via First Class U.S. Mail to the persons named below at the addresses set forth:

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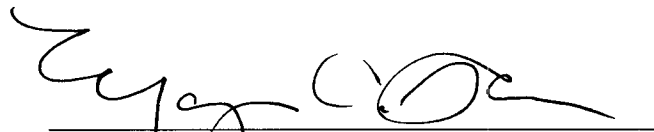
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Mary C. Salane

Cayce, South Carolina
This 22nd day of September, 2011

DIRECT TESTIMONY OF
DWIGHT M. HOLLIFIELD, ASLA
ON BEHALF OF
SOUTH CAROLINA ELECTRIC & GAS COMPANY
DOCKET NO. 2011-325-E

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dwight M. Hollifield. My business address is 10101 Claude Freeman Drive, Suite 100-W, Charlotte, NC 28262.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Pike Energy Solutions, LLC, a wholly owned subsidiary of Pike Electric Corporation, as Director of the Facilities Planning & Siting Division ("FPS"). Pike Electric Corporation is headquartered in Mt. Airy, North Carolina.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND, PROFESSIONAL ASSOCIATIONS, AND BUSINESS EXPERIENCE.

A. I received an Associate of Science degree in horticulture from Catawba Valley College in 1967. I have been a registered landscape architect in South Carolina since 1976 and am a member of the American Society of Landscape Architects.

I was employed by Duke Power Company (now known as Duke Energy Carolinas, LLC) and Duke Engineering & Services from July 1967 until May

1 2002 when Framatome ANP purchased Duke Engineering & Services. While at
2 Duke Power, I led the development of a comprehensive transmission line siting
3 process that FPS now executes when siting lines for various electrical utility
4 clients, including South Carolina Electric & Gas Company ("SCE&G"). I was
5 directly involved in the expansion of Duke Power's electrical transmission system,
6 particularly as it related to siting and site development planning for substations
7 and transmission lines. As manager of Duke Power's Transmission Siting and
8 Landscape Architecture Department, my responsibilities included siting
9 transmission lines, which involved conducting studies to assess the environmental,
10 cultural resource, land use, and aesthetic effects of those transmission line
11 projects. I had responsibility for obtaining all necessary permits and licenses for
12 new transmission lines.

13 In 1995, my department moved from Duke Power to Duke Engineering &
14 Services, and we began siting transmission lines for various electric utility clients,
15 primarily in North Carolina, South Carolina and Georgia. We continued to site all
16 new transmission lines for Duke Power on a contractual basis.

17 Following the acquisition of Duke Engineering & Services by Framatome
18 ANP in 2002, I served as general manager of Framatome's Facilities Planning &
19 Siting Department, and siting transmission lines and electrical substations
20 continued to be our primary service offering. Framatome's Facilities Planning &
21 Siting Department continued to site lines for Duke Power and for many other
22 clients, including SCE&G.

1 In 2005, two business associates and I acquired my department from
2 Framatome ANP and organized it as a limited liability company named Facilities
3 Planning & Siting, LLC. I served as president of Facilities Planning & Siting,
4 LLC until June 30, 2009, when we were acquired by Pike Electric Corporation.
5 While operating as a limited liability company and now as a department within
6 Pike Energy Solutions, LLC, our primary service offering was, and continues to
7 be, the siting, permitting and licensing of electrical transmission lines and
8 substations.

9 Pike Energy Solutions, LLC—with offices in Charlotte, North Carolina;
10 Pittsburgh, Pennsylvania; Austin, Texas; San Ramon, California; and Portland,
11 Oregon—provides electrical transmission and distribution systems planning,
12 siting, permitting, engineering and project management services to electrical
13 utility clients worldwide.

14 From 1990 until 2002, I represented Duke Energy on the Edison Electric
15 Institute's Siting and Environmental Planning Task Force. In 1991, I was
16 appointed to and served on the North Carolina Utilities Commission Rulemaking
17 Committee that drafted Rule R8-62, which is used by the Commission to
18 administer the provisions of North Carolina's Transmission Line Siting Act.

19 Since 1987, I have participated in and managed the successful siting,
20 permitting and licensing of more than 180 transmission lines, virtually all of which
21 are located in North and South Carolina.

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. The purpose of my testimony is to discuss the transmission line siting
3 methodology that SCE&G, in collaboration with FPS, utilized when choosing the
4 routes for the VCS1-Killian 230 kilovolt (“kV”) Line, the VCS2-Lake Murray 230
5 kV Line No. 2 and the segment of the VCS2-St. George 230 kV Line No. 1
6 (“Segment of the VCS2-St. George 230 kV Line No. 1”) that runs alongside the
7 VCS2-Lake Murray 230 kV Line No. 2 from the Company’s V.C. Summer
8 Switchyard #2 to the Lake Murray 230/115 kV Substation. My company collected,
9 mapped and analyzed extensive information regarding environmental, land use,
10 cultural resource, and visual effects of the proposed lines.

11 **Q. DO YOU HAVE ANY DOCUMENTS THAT SUPPORT OR ILLUSTRATE**
12 **YOUR TESTIMONY?**

13 A. Yes. As SCE&G’s siting and project permitting consultant, I am the author
14 of the Transmission Line Siting and Environmental Report for the VCS1-Killian
15 230 kV Line, dated July 2011 and attached to SCE&G’s Application in this docket
16 and to this testimony as Exhibit No. ____ (DMH-1). This report details the need
17 for the VCS1-Killian 230 kV Line, the process by which SCE&G selected the
18 route for the line, and the research and studies conducted regarding the
19 environmental, land use, cultural resource, and visual effects of the future VCS1-
20 Killian 230 kV Line.

21 I am also the author of the Transmission Line Siting and Environmental
22 Report for the VCS2-Lake Murray 230 kV Line No. 2 and a segment of the VCS2-

1 St. George 230 kV Line No. 1, dated July 2011 and attached to SCE&G's
2 Application in this docket and to this testimony as Exhibit No. ____ (DMH-2).
3 This report details the need for the VCS2-Lake Murray 230 kV Line No. 2 and the
4 Segment of the VCS2-St. George 230 kV Line No. 1, the process by which
5 SCE&G selected the route for the lines, and the research and studies conducted
6 regarding the environmental, land use, cultural resource, and visual effects of the
7 future VCS2-Lake Murray 230 kV Line No. 2 and the Segment of the VCS2-St.
8 George 230 kV Line No. 1.

9 **I. VCS1-KILLIAN 230 kV LINE**

10 **Q. PLEASE DESCRIBE THE ROUTE FOR THE PROPOSED VCS1-**
11 **KILLIAN 230 kV LINE.**

12 A. The proposed VCS1-Killian 230 kV Line will be approximately 37 miles
13 long. The proposed line will originate at the V.C. Summer Switchyard #1 and run
14 for approximately one (1) mile in existing right-of-way alongside the VCS1-Pineland
15 and the VCS1-Denny Terrace 230 kV Lines to a point identified as the Winnsboro
16 Junction. From the Winnsboro Junction, the VCS1-Killian 230 kV Line will run in a
17 northeasterly direction for approximately fourteen (14) miles in the existing Parr-
18 Winnsboro right-of-way to SCE&G's existing Winnsboro 115/23 kV Substation #1
19 ("Winnsboro Junction-Winnsboro Segment"). Bypassing the Winnsboro Substation
20 #1, the line will turn and run in a southeasterly direction for approximately sixteen
21 (16) miles in SCE&G's existing Winnsboro-Blythewood right-of-way to the site of
22 the future Blythewood 230/115 kV Substation ("Winnsboro-Blythewood Segment").

1 From the future Blythewood 230/115 kV Substation site, the VCS1-Killian 230 kV
2 Line will run in a southerly direction for approximately six (6) miles in new right-of-
3 way to the existing Killian 230/115 kV Substation (“Blythewood-Killian Segment”).
4 In the event that the Company cannot acquire the new right-of-way for the
5 Blythewood-Killian Segment on a schedule that will allow the VCS1-Killian 230 kV
6 Line to be energized by December 31, 2014, the Blythewood-Killian Segment will
7 be constructed in an existing six-mile right-of-way between the site of the future
8 Blythewood 230/115 kV Substation and the existing Killian 230/115 kV Substation.
9 See Exhibit No. __ (HCY-1).

10 **Q. PLEASE EXPLAIN THE COMPANY’S DECISION TO ROUTE THE**
11 **VCS1-KILLIAN 230 kV LINE THROUGH THE WINNSBORO AREA.**

12 Prior to conducting siting studies to determine the precise route for VCS1-
13 Killian 230 kV Line, SCE&G concluded that running the new line through the
14 Winnsboro area would provide a long-term solution to meet the needs of future
15 electrical load growth in the northeastern portion of its service area. Specifically,
16 extending a 230 kV line into the Winnsboro area will allow the addition of a future
17 230/115 kV substation to serve load growth in the Winnsboro region and in the
18 Interstate Highway 77 Corridor. With the future electrical system needs in mind,
19 SCE&G made the decision to run the VCS1-Killian 230 kV Line in the existing Parr-
20 Winnsboro right-of-way from the Winnsboro Junction to a site adjacent to that right-
21 of-way near Winnsboro. SCE&G acquired the selected site for a future 230/115 kV
22 substation near Winnsboro.

1 **Q. DID THE COMPANY CONDUCT ANY COMPREHENSIVE SITING**
2 **STUDIES TO SELECT THE ROUTE FOR THE VCS1-KILLIAN 230 kV**
3 **LINE?**

4 Yes. At the time the future Winnsboro 230/115 kV Substation site was
5 identified, SCE&G planned to conduct two comprehensive siting studies to
6 determine the routing for the remaining portion of the VCS1-Killian 230 kV Line
7 between the future Winnsboro 230/115 kV Substation site and the existing Killian
8 230/115 kV Substation. The objective of the first siting study was to determine the
9 route for the Blythewood-Killian Segment; the objective of the second siting study
10 was to determine the route for the Winnsboro-Blythewood Segment. Therefore, the
11 comprehensive siting study planned for the VCS1-Killian 230 kV Line only included
12 the Blythewood-Killian and Winnsboro-Blythewood Segments of the new line.

13 **Q. PLEASE DESCRIBE THE SITING STUDY FOR THE BLYTHEWOOD-**
14 **KILLIAN SEGMENT.**

15 The Blythewood-Killian Segment siting study began with the delineation of
16 a siting study area that included the entire geographic area through which any
17 practical transmission line route between the future Blythewood 230/115 kV
18 Substation site and the existing Killian 230/115 kV Substation could pass ("Siting
19 Study Area"). Data was collected to characterize the Siting Study Area and to
20 identify any environmental, land use, or cultural resource factors that should be
21 taken into consideration during the Blythewood-Killian Segment siting study.
22 After mapping an array of data, receiving input from community workshops,

1 conducting a quantitative and qualitative analysis, and completing representative
2 cost estimates, SCE&G determined that the new route currently proposed for the
3 Blythewood-Killian Segment would be superior to any of the remaining eighteen
4 (18) alternate routes considered in the siting study. The following reasons support
5 this selection:

- 6 1. Based on the results of the comprehensive siting study, the selected route
7 will minimize impacts over the broadest array of environmental, land use,
8 cultural resource, and aesthetic factors that were used to evaluate the
9 potential routes.
- 10 2. The selected route is the most economical of the five highest ranked routes
11 in the siting study.

12 Based on my experience with conducting comparative evaluations of alternate
13 transmission line routes through the application of quantified and qualitative
14 environmental, land use, cultural resource, and visual resource factors, SCE&G's
15 selection of the chosen route for the Blythewood-Killian Segment was proper.

16 **Q. PLEASE DESCRIBE THE SELECTION OF THE ROUTE FOR THE**
17 **WINNSBORO-BLYTHEWOOD SEGMENT.**

18 While the siting study for the Winnsboro-Blythewood Segment was
19 ongoing, SCE&G completed a comprehensive investigation that considered the
20 feasibility of using existing rights-of-way for the construction of all of the new
21 SCE&G 230 kV lines associated with V.C. Summer Units 2 and 3. The study
22 determined that the entire VCS1-Killian 230 kV Line, except for the

1 approximately six-mile Blythewood-Killian Segment, could be built on existing
2 right-of-way. Rather than discontinuing the Winnsboro-Blythewood siting study,
3 SCE&G elected to add the existing right-of-way option as the twenty-fifth (25th)
4 alternate route and complete the evaluation of the Winnsboro-Blythewood
5 Segment alternate routes according to SCE&G's comprehensive transmission line
6 siting protocol. This study concluded that the magnitude of effects to
7 environmental, cultural, land use and scenic resources associated with building the
8 Winnsboro-Blythewood Segment on existing right-of-way is reduced when
9 compared to the green-field routes. Consequently, SCE&G decided to build the
10 Winnsboro-Blythewood Segment of the VCS1-Killian 230 kV Line on the existing
11 Winnsboro-Blythewood right-of-way.

12 **Q. IN YOUR PROFESSIONAL JUDGMENT, WAS SCE&G'S SELECTION**
13 **OF THE ROUTE FOR THE VCS1-KILLIAN 230 kV LINE PROPER?**

14 Yes. In my professional judgment, SCE&G's selection of the route for the
15 entire VCS1-Killian 230 kV Line was proper.

1 **Q. WILL THE PROPOSED VCS1-KILLIAN 230 kV LINE, INCLUDING THE**
2 **ALTERNATE EXISTING RIGHT-OF-WAY ROUTE FOR THE**
3 **BLYTHEWOOD-KILLIAN SEGMENT AS DISCUSSED IN WITNESS**
4 **YOUNG’S TESTIMONY, AND ASSOCIATED FACILITIES HAVE ANY**
5 **SIGNIFICANT SHORT- OR LONG-TERM ENVIRONMENTAL**
6 **IMPACTS?**

7 A. No. The construction and operation of the VCS1-Killian 230 kV Line,
8 regardless of whether the Blythewood-Killian Segment is built along the selected
9 new right-of-way route or the alternate existing right-of-way route, will not have
10 any significant short- or long-term impacts on the environment.

11 **Q. WHAT WAS THE CONCLUSION OF THE STUDIES THAT WERE**
12 **CONDUCTED FOR THE VCS1-KILLIAN 230 kV LINE TO DETERMINE**
13 **EFFECTS TO RARE, THREATENED AND ENDANGERED SPECIES?**

14 A. Field surveys were conducted by biologists and botanists to search for rare,
15 threatened and endangered species along the route of the VCS1-Killian 230 kV
16 Line including the alternate existing route for the Blythewood-Killian Segment.
17 Prior to beginning field surveys, the U.S. Fish and Wildlife Service (“USFWS”)
18 and the South Carolina Department of Natural Resources (“SCDNR”) were
19 contacted to obtain the most current known state and federally-protected species
20 occurrence information, and each agency provided the requested data. Ground
21 surveys were conducted to search for state and federally-listed rare, threatened and
22 endangered plant and animal species within the transmission line rights-of-way

1 corridors for all of the new 230 kV lines associated with the VCSNS Units 2 and 3
2 project, including the VCS1-Killian 230 kV Line route. No state or federally-
3 listed plant or animal was found along the route of the VCS1-Killian 230 kV Line.
4 Therefore, the proposed VCS1-Killian 230 kV Line, regardless of whether the
5 Blythewood-Killian Segment is built along the selected new right-of-way route or
6 the alternate existing right-of-way route, will have no adverse effects on rare,
7 threatened or endangered species.

8 **Q. PLEASE DESCRIBE THE IMPACTS TO WETLANDS OR STREAMS, IF**
9 **ANY, THAT WILL RESULT FROM CONSTRUCTION AND OPERATION**
10 **OF THE VCS1-KILLIAN 230 kV LINE, INCLUDING THE ALTERNATE**
11 **EXISTING RIGHT-OF-WAY ROUTE FOR THE BLYTHEWOOD-**
12 **KILLIAN SEGMENT, AND ASSOCIATED FACILITIES.**

13 A. The construction and operation of the VCS1-Killian 230 kV Line,
14 regardless of whether the Blythewood-Killian Segment is built along the selected
15 new right-of-way route or the alternate existing right-of-way route, will not have
16 any significant short- or long-term impacts to wetlands or streams. SCE&G will
17 utilize established wetland protection guidelines when operating near or within
18 wetland areas. The basic function of wetlands crossed by the VCS1-Killian 230
19 kV Line will not be changed, and no wetlands will be converted to uplands. If the
20 new approximately six-mile segment of right-of-way is utilized for the
21 Blythewood-Killian Segment, approximately twelve and one-half (12.5) acres of
22 wetlands will be permanently converted from forested wetlands to permanent

1 herbaceous wetlands; if the Blythewood-Killian Segment is built along the
2 existing right-of-way between the future Blythewood 230/115 kV Substation site
3 and Killian 230/115 kV Substation, approximately one and one-half (1.5) acres of
4 wetlands will be permanently converted from forested wetlands to permanent
5 herbaceous wetlands. This conversion will not affect critical wetland functions
6 that include surface water storage, subsurface water storage, nutrient cycling, and
7 particle retention. The wetland function associated with maintenance of plant and
8 animal communities will change in that herbaceous wetlands will provide habitat
9 for different plant and animal communities than is typically provided by forested
10 wetlands. It should be noted that wetland impacts associated with the project will
11 be offset through appropriate compensatory mitigation, the plan for which will be
12 reviewed and approved by the U.S. Army Corps of Engineers (“USACE”) and
13 other state and federal regulatory and resource agencies through the Clean Water
14 Act Section 404 permitting program and Section 401 certification program. The
15 compensatory mitigation plan will adhere to Section 404/401 guidelines, as well as
16 to: 1) 33 CFR Chapter II, Part 332 – Compensatory Mitigation for Losses of
17 Aquatic Resources; 2) the Charleston District USACE’s “Standard Operating
18 Procedure for Compensatory Mitigation,” issued September 19, 2002 (RD-SOP-
19 02-01); and 3) the Charleston District USACE’s “Guide for Preparing a
20 Compensatory Mitigation Plan,” last revised October 7, 2010. SCE&G will also
21 apply its longstanding practices and procedures for operations within wetlands,

1 which have proven to be effective in preventing temporary, construction-related
2 impacts to wetlands.

3 The VCS1-Killian 230 kV Line will cross certain streams along its route
4 from the V.C. Summer Switchyard #1 to the Killian 230/115 kV Substation, most
5 of which are located in existing, cleared rights-of-way where no clearing will be
6 required near the streams. Where clearing must be done near streams, existing
7 low-growing vegetation will be left intact to the maximum practical extent in
8 stream buffer zones, and root mats in any specified buffer zones will not be
9 disturbed. SCE&G will install erosion control measures wherever they may be
10 required to prevent translocation of sediment from construction sites to wetlands
11 or streams. Based on my direct experience in planning erosion control measures
12 for more than 100 transmission line construction projects, there will be no adverse
13 impacts to wetlands or streams resulting from construction of the VCS1-Killian
14 230 kV Line.

15 **Q. WHAT WAS THE CONCLUSION OF THE CULTURAL RESOURCE**
16 **INVESTIGATION THAT WAS CONDUCTED ALONG THE ROUTE OF**
17 **THE PROPOSED VCS1-KILLIAN 230 kV LINE?**

18 A. SCE&G has entered into a “Cultural Resources Management Plan and
19 Agreement” (“CRMPA”) with S.C. State Historic Preservation Office (“SHPO”)
20 and the USACE regarding management of potential cultural resources within all
21 proposed line right-of-way corridors associated with construction of VCSNS Units
22 2 and 3. The identification, assessment, and protection of cultural resources along

1 the routes of the new 230 kV lines associated with VCSNS Units 2 and 3,
2 including the VCS1-Killian 230 kV Line, will be pursuant to the CRMPA. The
3 terms of the CRMPA are designed to ensure that cultural resources along the new
4 230 kV lines are properly identified, assessed, and protected during construction
5 and operation of the lines.

6 Pursuant to its obligations under the terms of the CRMPA, SCE&G
7 engaged Brockington and Associates (“Brockington”), a cultural resource
8 consulting firm, to conduct investigations along the VCS1-Killian 230 kV Line
9 route, including a comprehensive Phase I Cultural Resource Survey throughout the
10 proposed right-of-way for the new line route that is planned for the Blythewood-
11 Killian Segment. Additionally, Brockington conducted a windshield
12 reconnaissance survey to identify all above ground historic resources within 1.2
13 miles of the total line route that are on or eligible for the National Register of
14 Historic Places (“NRHP”), which included the existing and new right-of-way
15 options for the Blythewood-Killian Segment.

16 Brockington determined that no archaeological resources will be adversely
17 affected by building the Blythewood-Killian Segment of the VCS1-Killian 230 kV
18 Line on the new right-of-way. These findings were documented in a report
19 submitted to the SHPO, and the SHPO has since issued a letter concluding that the
20 report met the guidelines set forth in the South Carolina Standards and Guidelines
21 and that no properties listed in or eligible for listing in the NRHP will be affected
22 by the VCS1-Killian 230 kV Line project. Moreover, working closely with

1 Brockington, FPS conducted comprehensive viewshed analysis studies and
2 determined that the VCS1-Killian 230 kV Line, whether the Blythewood-Killian
3 Segment is built on the new or existing right-of-way options, will have no adverse
4 visual effects to historic resources on or potentially eligible for the NRHP.

5 Where the VCS1-Killian 230 kV Line will be built on existing right-of-
6 way, the CRMPA requires that cultural resource investigations be conducted
7 wherever land disturbance will occur, which includes new structure sites. SCE&G
8 will comply with this requirement and will, in the unlikely event that archeological
9 resources are discovered, comply with the terms of the CRMPA to report them and
10 provide for their protection.

11 **Q. WHAT WILL BE THE VISUAL EFFECTS OF THE VCS1-KILLIAN 230**
12 **kV LINE?**

13 A. The additional impact on visual effects of the VCS1-Killian 230 kV Line,
14 regardless of whether the Blythewood-Killian Segment is built along the selected
15 new right-of-way route or the alternate existing right-of-way route, will be low
16 because existing lines are being replaced within existing rights of way for at least 31
17 miles of the 37-mile length.

18 For the approximately six-mile Blythewood-Killian Segment, which will be
19 constructed in new right-of-way, FPS conducted an extensive investigation to
20 quantify and compare the visual effects on residences that would result from
21 construction of the proposed line on each of the nineteen (19) alternate routes
22 considered. All residences with possible views of a future line built on any of the

1 alternate routes were carefully evaluated by a process that included field
2 reconnaissance and consideration of view distance from individual residences to
3 possible future lines on the alternate routes and the degree of screening afforded by
4 vegetation and topography. The selected route, compared to the remaining four (4)
5 alternate routes that ranked superior in the siting study for the Blythewood-Killian
6 Segment, minimizes visibility from residences.

7 Additionally, FPS conducted studies to determine the comparative visibility
8 of the future line from public roads if built on any of the nineteen (19) alternate
9 routes. Visibility from public roads of the Blythewood-Killian Segment will be
10 lower if the Blythewood-Killian Segment is built on the selected route than if it is
11 built on any of the remaining four (4) alternate routes that were determined to be
12 among the five (5) superior routes in the siting study.

13 **Q. IS THE IMPACT, IF ANY, OF THE PROPOSED VCS1-KILLIAN 230 kV**
14 **LINE UPON THE ENVIRONMENT JUSTIFIED CONSIDERING THE**
15 **STATE OF AVAILABLE TECHNOLOGY AND THE NATURE AND**
16 **ECONOMICS OF THE VARIOUS ALTERNATIVES?**

17 **A.** Yes. As I stated earlier, the route that SCE&G chose for the VCS1-Killian
18 230 kV Line, regardless of whether the Blythewood-Killian Segment is built along
19 the selected new right-of-way route or the alternate existing right-of-way route,
20 supports the future electric demand in the Winnsboro region of its service territory
21 and along the I-77 corridor, and the use of existing right-of-way for at least 31
22 miles of the 37-mile length minimizes any environmental, land use, cultural

1 resource, and aesthetic effects as compared to green-field routes. The route
2 selected for the approximately six-mile Blythewood-Killian Segment minimizes
3 impacts over the broadest array of environmental, land use, cultural resource, and
4 aesthetic factors when compared to the other eighteen (18) alternate green-field
5 routes and was the most economical of the five (5) highest ranked routes in the
6 siting study. Moreover, as Witness Young states in his testimony, SCE&G
7 considered several alternatives to the proposed line and determined that these
8 alternatives were not cost-effective solutions to provide its customers with long-
9 term electrical system reliability.

10
11 **II. VCS2-LAKE MURRAY 230 kV LINE NO. 2 AND THE SEGMENT OF THE**
12 **VCS2-ST. GEORGE 230 kV LINE NO. 1**
13

14 **Q. PLEASE DESCRIBE THE ROUTE FOR THE VCS2-LAKE MURRAY 230**
15 **kV LINE NO. 2 AND THE SEGMENT OF THE VCS2-ST.GEORGE 230 kV**
16 **LINE NO. 1.**

17 A. The proposed VCS2-Lake Murray 230 kV Line No. 2 and the proposed
18 Segment of the VCS2-St. George 230 kV Line No. 1 will share common single
19 pole, double-circuit structures for approximately twenty-two (22) miles from the
20 V.C. Summer Switchyard #2 to the Lake Murray 230/115 kV Substation. This
21 double-circuit line will be built on SCE&G property for approximately 2.5 miles
22 from the V.C. Summer Switchyard #2 to the Parr Hydro Plant at the Broad River.
23 From the Parr Hydro Plant, the new double-circuit line will run for approximately

1 4.5 miles in a southwesterly direction in the existing Parr Hydro-Chapin right-of-
2 way until it reaches the Chapin Junction, the point where the Parr Hydro-Chapin
3 right-of-way intersects with SCE&G's existing Saluda Hydro-Newberry right-of-
4 way. From the Chapin Junction, the new double-circuit line will turn in a
5 southerly direction and run in the Saluda Hydro-Newberry right-of-way for
6 approximately 15 miles until it reaches the Lake Murray 230/115 kV Substation.

7 **Q. WILL THE PROPOSED VCS2-LAKE MURRAY 230 kV LINE NO. 2 AND**
8 **THE SEGMENT OF THE VCS2-ST. GEORGE 230 kV LINE NO. 1 AND**
9 **ASSOCIATED FACILITIES HAVE ANY SIGNIFICANT SHORT- OR**
10 **LONG-TERM ENVIRONMENTAL IMPACTS?**

11 A. No. The construction and operation of the VCS2-Lake Murray 230 kV
12 Line No. 2 and the Segment of the VCS2-St. George 230 kV Line No. 1 will not
13 have any significant short- or long-term impacts on the environment.

14 **Q. WHAT WAS THE CONCLUSION OF THE STUDIES THAT WERE**
15 **CONDUCTED FOR THE VCS2-LAKE MURRAY 230 kV LINE NO. 2 AND**
16 **THE SEGMENT OF THE VCS2-ST. GEORGE 230 kV LINE NO. 1 LINE**
17 **TO DETERMINE EFFECTS TO RARE, THREATENED AND**
18 **ENDANGERED SPECIES?**

19 A. Field surveys were conducted by biologists and botanists to search for rare,
20 threatened and endangered species along the route of the VCS2-Lake Murray 230
21 kV Line No. 2 and Segment of the VCS2-St. George 230 kV Line No. 1. Prior to
22 beginning field surveys, the USFWS and the SCDNR were contacted to obtain the

1 most current known state and federally-protected species occurrence information,
2 and each agency provided the requested data. Ground surveys were conducted to
3 search for state and federally-listed rare, threatened and endangered plant and
4 animal species within the transmission line rights-of-way corridors for all of the
5 new 230 kV lines associated with the VCSNS Units 2 and 3 project, including the
6 VCS2-Lake Murray 230 kV Line No. 2 and Segment of the VCS2-St. George 230
7 kV Line No. 1 route. No state or federally-listed plant or animal was found along
8 the route of the VCS2-Lake Murray 230 kV Line No. 2 and Segment of the VCS2-
9 St. George 230 kV Line No. 1. Therefore, the proposed VCS2-Lake Murray 230
10 kV Line No. 2 and Segment of the VCS2-St. George 230 kV Line No. 1 will have
11 no adverse effects on rare, threatened or endangered species.

12 **Q. PLEASE DESCRIBE THE IMPACTS TO WETLANDS OR STREAMS, IF**
13 **ANY, THAT WILL RESULT FROM CONSTRUCTION AND OPERATION**
14 **OF THE VCS2-LAKE MURRAY 230 kV LINE NO. 2 AND THE SEGMENT**
15 **OF THE VCS2-ST. GEORGE 230 kV LINE NO. 1 AND ASSOCIATED**
16 **FACILITIES.**

17 A. The construction and operation of the VCS2-Lake Murray 230 kV Line No.
18 2 and Segment of the VCS2-St. George 230 kV Line No. 1 will not have any
19 significant short- or long-term impacts to wetland or streams. SCE&G will utilize
20 established wetland protection guidelines when operating near or within wetland
21 areas. The basic function of wetlands crossed by the VCS2-Lake Murray 230 kV
22 Line No. 2 and Segment of the VCS2-St. George 230 kV Line No. 1 will not be

1 changed, and no wetlands will be converted to uplands. Due to clearing required
2 to expand to the full limits of the existing rights-of-way within which the VCS2-
3 Lake Murray 230 kV Line No. 2 and Segment of the VCS2-St. George 230 kV
4 Line No. 1 will be built, approximately six (6) acres of forested wetlands will be
5 converted to permanent herbaceous wetlands. This conversion will not affect
6 critical wetland functions that include surface water storage, subsurface water
7 storage, nutrient cycling, and particle retention. The wetland function associated
8 with maintenance of plant and animal communities will change in that herbaceous
9 wetlands will provide habitat for different plant and animal communities than is
10 typically provided by forested wetlands. It should be noted that wetland impacts
11 associated with the project will be offset through appropriate compensatory
12 mitigation, the plan for which will be reviewed and approved by the USACE and
13 other state and federal regulatory and resource agencies through the Clean Water
14 Act Section 404 permitting program and Section 401 certification program. The
15 compensatory mitigation plan will adhere to Section 404/401 guidelines, as well as
16 to: 1) 33 CFR Chapter II, Part 332 – Compensatory Mitigation for Losses of
17 Aquatic Resources; 2) the Charleston District USACE’s “Standard Operating
18 Procedure for Compensatory Mitigation,” issued September 19, 2002 (RD-SOP-
19 02-01); and 3) the Charleston District USACE’s “Guide for Preparing a
20 Compensatory Mitigation Plan,” last revised October 7, 2010. SCE&G will also
21 apply its longstanding practices and procedures for operations within wetlands,

1 which have proven to be effective in preventing temporary, construction-related
2 impacts to wetlands and stream buffer zones.

3 The VCS2-Lake Murray 230 kV Line No. 2 and Segment of the VCS2-St.
4 George 230 kV Line No. 1 will cross certain streams along its route from the V.C.
5 Summer Switchyard #2 to the Lake Murray 230/115 kV Substation, many of
6 which are located in existing, cleared rights-of-way where no clearing will be
7 required near the streams. Where clearing must be done near streams, existing
8 low-growing vegetation will be left intact to the maximum practical extent in
9 stream buffer zones, and root mats in any specified buffer zones will not be
10 disturbed. SCE&G will install erosion control measures wherever they may be
11 required to prevent translocation of sediment from construction sites to wetlands
12 or streams. Based on my direct experience in planning erosion control measures
13 for more than 100 transmission line construction projects, there will be no adverse
14 impacts to wetlands or streams resulting from construction of the VCS2-Lake
15 Murray 230 kV Line No. 2 and Segment of the VCS2-St. George 230 kV Line No.
16 1.

17 **Q. WHAT WAS THE CONCLUSION OF THE CULTURAL RESOURCE**
18 **INVESTIGATION THAT WAS CONDUCTED ALONG THE ROUTE OF**
19 **THE VCS2-LAKE MURRAY 230 kV LINE NO. 2 AND THE SEGMENT OF**
20 **THE VCS2-ST. GEORGE 230 kV LINE NO. 1?**

21 A. SCE&G has entered into a CRMPA with the SHPO and the USACE
22 regarding management of potential cultural resources within all proposed line

1 right-of-way corridors associated with construction of VCSNS Units 2 and 3. The
2 identification, assessment, and protection of cultural resources along the routes of
3 the new 230 kV lines associated with VCSNS Units 2 and 3, including the VCS2-
4 Lake Murray 230 kV Line No. 2 and Segment of the VCS2-St. George 230 kV
5 Line No. 1, will be pursuant to the CRMPA. The terms of the CRMPA are
6 designed to ensure that cultural resources along the new 230 kV lines are properly
7 identified, assessed, and protected during construction and operation of the lines.

8 Pursuant to its obligations under the terms of the CRMPA, SCE&G
9 engaged Brockington, a cultural resource consulting firm, to conduct
10 investigations along the route of the VCS2-Lake Murray Line No. 2 and Segment
11 of the VCS2-St. George 230 kV Line No. 1, including a comprehensive Phase I
12 Cultural Resource Survey throughout the existing right-of-way where construction
13 will occur. Additionally, Brockington conducted a windshield reconnaissance
14 survey to identify all above ground historic resources within 1.2 miles of the total
15 line route that are on or eligible for the NRHP.

16 Brockington determined that no archaeological resources will be adversely
17 affected by the VCS2-Lake Murray Line No. 2 and Segment of the VCS2-St.
18 George 230 kV Line No. 1. These findings were documented in a report
19 submitted to the SHPO, and the SHPO has since issued a letter concluding that the
20 report met the guidelines set forth in the South Carolina Standards and Guidelines
21 and that no properties listed in or eligible for listing in the NRHP will be affected
22 by the VCS2-Lake Murray 230 kV Line No. 2 and the Segment of the VCS2-St.

1 George 230 kV Line No. 1 project. Moreover, working closely with Brockington,
2 FPS conducted comprehensive viewshed analysis studies and determined that the
3 VCS2-Lake Murray Line No. 2 and Segment of the VCS2-St. George 230 kV Line
4 No. 1 will have no adverse visual effects to historic resources on or potentially
5 eligible for the NRHP.

6 The CRMPA requires that cultural resource investigations be conducted
7 wherever land disturbance will occur, which includes new structure sites. In my
8 opinion, this requirement has been substantially met since the Phase I
9 Archaeological investigation was conducted throughout the portion of existing
10 right-of-way where VCS2-Lake Murray 230 kV Line No. 2 and Segment of the
11 VCS2-St. George 230 kV Line No. 1 will be built; nevertheless, SCE&G will
12 confirm the adequacy of the completed investigation with the SHPO and USACE
13 prior to any land-disturbing construction activity and will comply with any
14 additional cultural resource investigation requirements.

15 **Q. WHAT WILL BE THE VISUAL EFFECTS OF THE PROPOSED VCS2-**
16 **LAKE MURRAY 230 kV LINE NO. 2 AND SEGMENT OF THE VCS2-ST.**
17 **GEORGE 230 kV LINE NO. 1?**

18 A. The additional impact on visual effects of the proposed VCS2-Lake Murray
19 230 kV Line No. 2 and Segment of the VCS2-St. George 230 kV Line No. 1 will be
20 low from the V.C. Summer Switchyard #2 to the Chapin Junction due to the
21 screening that will be afforded by forested tracts on each side of the right-of-way
22 over the majority of the length of this line segment. Also, this line segment is

1 through an area that is largely undeveloped with few roads that will be crossed by the
2 line; therefore, the opportunities to view the future line along the segment extending
3 from the V.C. Summer Switchyard #2 to the Chapin Junction will be limited. The
4 visual effects of the line from the Chapin Junction to the Lake Murray 230/115 kV
5 Substation will be moderate due primarily to development that has occurred over the
6 years in close proximity to the existing right-of-way.

7 **Q. IS THE IMPACT, IF ANY, OF THE PROPOSED VCS2-LAKE MURRAY**
8 **230 kV LINE NO. 2 AND SEGMENT OF THE VCS2-ST. GEORGE 230 kV**
9 **LINE NO. 1 UPON THE ENVIRONMENT JUSTIFIED CONSIDERING THE**
10 **STATE OF AVAILABLE TECHNOLOGY AND THE NATURE AND**
11 **ECONOMICS OF THE VARIOUS ALTERNATIVES?**

12 A. Yes. Because SCE&G chose to build the VCS2-Lake Murray 230 kV Line
13 No. 2 and Segment of the VCS2-St. George 230 kV Line No. 1 entirely within
14 existing SCE&G right-of-way, the resulting environmental, land use, cultural
15 resource, and aesthetic effects are minimized. Moreover, as Witness Young states
16 in his testimony, SCE&G considered several alternatives to the proposed line and
17 determined that these alternatives were not appropriate solutions to provide its
18 customers with long-term electrical system reliability.

1 **Q. IN YOUR PROFESSIONAL JUDGMENT, WAS SCE&G’S SELECTION**
2 **OF THE ROUTE FOR THE VCS2-LAKE MURRAY 230 kV LINE NO. 2**
3 **AND THE SEGMENT OF THE VCS2-ST. GEORGE 230 kV LINE NO. 1**
4 **PROPER?**

5 **A.**Yes. In my professional judgment, SCE&G’s selection of the chosen route
6 for the VCS2-Lake Murray 230 kV Line No. 2 and the Segment of the VCS2-St.
7 George 230 kV Line No. 1 was proper.

8 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

9 **A.**Yes.